

Snowmobilers and Cross-Country Skiers: The Nature and Extent of Conflict and the Costs and Benefits of Its Reduction



Kreg Lindberg

Oregon State University – Cascades Campus

541-322-3126

kreg.lindberg@osucascades.edu



The Issue

- Cross country skiers and snowmobilers both utilize and enjoy nature – often in the same place and time.
- In the mid-90s, the NSRE indicated that roughly equal numbers of Americans cross-country skied (6.5 million) and snowmobiled (7.1 million).
- However, snowmobiling and other motorized recreation has been increasing faster – with 11.8 million snowmobilers by the 2000-2003 NSRE.





The Issue

- In addition, snowmobiles increasingly are accessing remote areas
 - new sleds are more powerful and float better
 - in some cases, sleds are used to bring skiers/snowboarders to areas previously served only by heli-skiing
- Conflict has occurred for many years, but increased number of snowmobilers and the expanded area they access has made conflict more common and difficult to resolve.
- Recreation conflict, an experiential issue, generally is only one part of the management challenge.

The Issue

- Both activities can generate a variety of benefits and costs
 - economic
 - ecologic
 - experiential (conflict)

Yellowstone | Grand Teton | Glacier | Big Sky | Black Hills | Bozeman | Cody | Jackson | Red
WEST YELLOWSTONE.COM Book snowmobile rentals and West Yellowstone
WEST YELLOWSTONE MONTANA A Travel Guide Built by L
home | subscribe | site map | contact info | request a link | **WIN A TRIP!**

supporters
Whitewater Rafting

FOR TRAVELERS
Attractions
Lodging
Airlines & Airport
Winter Packages
Reservations
Specials & Deals
Winter Recreation
Summer Recreation
Travel Planning
Transportation
RV & Camping
Entertainment
Restaurants / Dining
Shopping
Group / Event Planning

BUSINESSES
Local Services
Real Estate
Employment & Jobs
Wedding planning

AREA FEATURES
Snowmobiling
Snow Coach Tours
Cross Country Skiing
Snowshoeing
Skiing / Snowboarding
Bin. Sky Resort


STOP AQUATIC HITCHHIKERS! **PROTECT YOUR WATERS**

Home > Snowmobiling [SEND THIS PAGE TO A FRIEND](#)

Snowmobiling Pages
• [Snowmobiling Packages](#)
• [Snowmobiling Yellowstone](#)
• [Backcountry Snowmobiling](#)
• [Snowmobile Trails](#)
• [Snowmobile Reports](#)

Snowmobiling Capital of the World!
West Yellowstone, Montana has earned a reputation among sled enthusiasts as the "Snowmobiling Capital of the World."

Powder plenty! Averaging over 150 inches of the white stuff each year, West offers a consistently radical snow experience. Few places in North America can match the quality of snow available in West Yellowstone and the surrounding areas. There's no shortage of open, powdery terrain waiting to be explored!


Snowmobiling
© Vertical Media





The Issue

- Managers have wrestled with the experiential aspect (conflict), as well as ecological and economic impacts, while trying to maintain access
 - Dutchman Flat in Deschutes NF (Central Oregon)
 - Yellowstone NP
 - Rabbit Ears, Vail, and Wolf Creek Pass in CO
 - Scandinavia
- A common response is spatial separation – sometimes voluntary, sometimes management-enforced.
- Other responses include education/awareness, snowmobiling bans, numeric limits, technology requirements, etc.



The Issue

- This presentation focuses on
 - the nature and extent of skier-snowmobiler conflict, based on case studies in:
 - Sweden – conducted by the European Tourism Research Institute
 - Wolf Creek Pass, CO – conducted by Colorado State University and Backcountry Skier Alliance
 - conflict as only one part of a multi-dimensional issue, and the management challenge this complexity generates



Nature of Conflict

- Conflict may be caused by direct or indirect contact
 - tangible effects that lead to a discrepancy between recreation goals (e.g., solitude and tranquility) and the actual experience (e.g., noise and smell)
 - normative beliefs about the acceptability of behaviors or of the mere presence of an activity in a particular (or type of) location
 - snowmobiles in national parks
 - beliefs and opinions about the people engaged in an activity
 - “they’re not like us”
- Conflict is often asymmetric
 - broadly, skiers perceive conflict while snowmobilers do not

Nature of Conflict

- Recreationists may have a negative evaluation of the “offending” activity, but may not always be aware of, or be willing to express, the factors leading to this evaluation
 - Dutchman Flat process focused on safety, but for many the issue reflected other concerns

USFS wants a safer Dutchman Flat

Forest Service to host summit on boosting safety at popular sno-park

By Rachel Odell
The Bulletin

11/2/04
A “Dutchman Flat Snow Summit” will be hosted by Forest Service officials in an effort to resolve contentious issues at the popular sno-park, it was announced Tuesday night.

The aim of the summit is to have various factions focus on solutions to a host of sno-park issues that have become more pronounced in recent years.

Snowmobilers, snowshoers and skiers — groups that have a stake in such a summit — all use the popular parking lot situated across Century Drive from Mount Bachelor, according to Forest Service spokeswoman Sue Olson.

The sno-park provides access to the Three Girls Wild



Nature of Conflict

- Given this caveat, what do skiers report as problems? (Focus on skiers because of asymmetry.)
- Examples from Northern Sweden (2001) and Wolf Creek Pass, Colorado (2002/03).
- The Swedish region is generally above tree-line, so recreationists are visible and audible to each other.



Nature of Conflict – Sweden

- Noise and smell rated most negative.
- Skiers recognize benefits of snowmobiles.

Item	Evaluation (% of respondents)				
	Very negative	Negative	Neutral	Positive	Very positive
Seeing snowmobiles	9	33	53	4	1
Hearing snowmobiles	33	44	21	1	1
Smelling snowmobiles	58	30	10	1	1
Knowing that snowmobiles are in the area, even if one doesn't see, hear, or smell them	4	11	66	13	6
Being able to use snowmobile tracks	4	12	35	41	8
Knowing that there are "private" snowmobiles in the area in case of accidents	2	2	27	49	21



Nature of Conflict – Wolf Creek

- At Wolf Creek, noise and smell also were the most problematic aspects.
- In a separate question format, 25% agreed that they were happy to see trails broken by snowmobiles.
- Safety/behavior concerns exist, but less problematic.

Item	Not a problem	Slight problem	Moderate problem	Extreme Problem
Hearing snowmobiles	32	29	21	18
Smelling snowmobile exhaust	29	25	25	21
Snowmobilers riding out of control	41	35	15	9
Snowmobilers being rude and discourteous	45	38	14	3
Wildlife being disturbed by snowmobiles	44	30	16	9

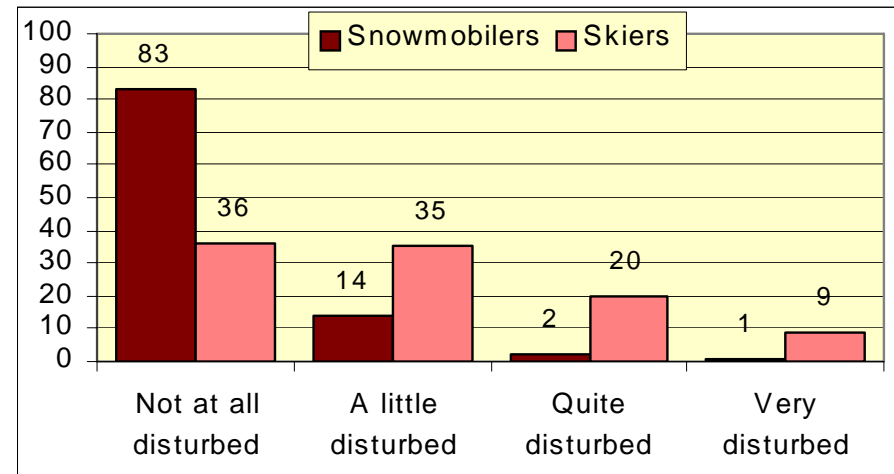


Nature of Conflict – Appropriateness

- In Sweden, the “knowing that snowmobiles are in the area...” item was intended to measure perceived appropriateness, but possibly misunderstood.
- When asked more directly, 20% of skiers agreed that snowmobiling is an appropriate use of the area, while 54% disagreed.
- At Wolf Creek, 33% agreed and 37% disagreed.

Extent of Conflict

- In Sweden, the area does not receive a high level of snowmobile use.
- Nonetheless, 95% of skiers saw or heard snowmobiles.
- Of those, most reported some level of disturbance (graph).
- At Wolf Creek, 90% heard snowmobiles.





Summary

- In these particular sites, the majority of skiers who recreate in areas shared by snowmobilers hear or see the latter.
- Roughly a third report some level of conflict – a negative evaluation of that interaction.
- Conflict associated with direct contact (noise and smell) generates substantial negative evaluation.
- Technological improvement can address these concerns in part, but spatial separation may be the best solution in some cases.
- The challenge – do the costs associated with separation outweigh the benefits?



Comparing Benefits and Costs

- Even ignoring some stakeholders and dimensions, such as the financial impact on land management agencies, it quickly becomes difficult to measure the broad range of costs and benefits.
- **Illustrative** benefits and costs of significant spatial separation include (snowmobilers assumed to lose access to an area that initially was shared):

		Effects Across (Some) Dimensions			
	Stakeholders	Experiential	Ecological	Economic	Symbolic
	Included visitors	Gains for those valuing reduced disturbance	Gains for those valuing improved air quality and other improvements		Gains for those who oppose snowmobile access to the area;
	Excluded visitors	Losses for those foregoing experience or using lower-quality substitutes		Losses if substitute sites are more distant or costly	Losses for those who oppose access restrictions
	Visitors at substitute sites	Losses if displaced visitors lead to crowding at substitute sites			
	Local residents		Gains for those valuing improved air quality and other improvements	Losses if there is net decline in benefits arising from changed visitor expenditure	
	General public		Gains for those valuing improved air quality and other improvements	Losses for those valuing maintenance of local economies	Gains for those who oppose snowmobile access to the area; losses for those who oppose access restrictions



Comparing Benefits and Costs

- One aspect of the challenge is that these effects/impacts typically are measured in different metrics, if at all.
- And many metrics do not allow comparison across units (e.g., recreationists).
- How does one compare the satisfaction gains for included skiers with the satisfaction losses for displaced snowmobilers?
- How does one compare the net effect on recreationist satisfaction with the net effect on agency revenue or the local economy?

Comparing Benefits and Costs

- Economics provides a common metric (economic value) and a criterion (positive and maximum net present value).
- Economics is not proposed as the sole basis for decision making, but rather as an approach for providing useful information to decision makers.
- The Swedish case study illustrates how the benefits to skiers can be compared to the financial costs of separation.



The Method

- A choice experiment (CE) was used to assess the value skiers place on conflict reduction.
- Skiers chose between two trails described in terms of five attributes, with attribute levels varying across trails.
- Respondents can alternatively choose “don’t go skiing.”

Qualities	Trail 1	Trail 2
Distance between lodging and trail	25 km	0 km (the trail is right next to your lodging)
Cost for a daily pass to use the trail	50 kr per adult per day	20 kr per adult per day
Number of wind shelters	No wind shelters along the trail	Several wind shelters along the trail
Natural scenery along the trail	Nicer than average	Average
Presence of snowmobiles	Not allowed in area	Don't see, hear or smell exhaust from snowmobiles. Snowmobiling allowed in area.



The Method

- Attribute levels assigned according to a fractional factorial design – keeps attributes independent of each other.
- The design led to 16 scenarios, each respondent presented with 4, so 4 versions of survey.
- Responses can be analyzed to estimate the importance of each attribute – including level of snowmobile presence.
- In principle, the respondent task is simple – consider the attributes and how much you value them, then choose the most favorable alternative.



The Method

- Details of the analysis are available from the author.
- The multinomial logit model fit well, with all attribute coefficients significant.
- A base model was specified and the value of conflict reduction relative to this base estimated.
- A change from “sharing trails” to “snowmobiles allowed in area, but not seen heard, or smelled” leads to gains of 230 kronor (US\$29) per skier party.



The Method

- Details of the analysis are available from the author.
- The multinomial logit model fit well, with all attribute coefficients significant.
- A base model was specified and the value of conflict reduction relative to this base estimated.
- A change from “sharing trails” to “snowmobiles allowed in area, but not seen heard, or smelled” leads to gains of 230 kronor (US\$29) per skier party.



The Simple Example

- This skier willingness-to-pay was compared to the financial cost of trail separation in the area.
- Using simple but realistic assumptions (e.g., 1,000 skier parties per year, construct and maintain 10 km of new snowmobile trail), the benefits accruing to skiers would outweigh the financial costs by the end of the 2nd year.



Summary

- Recreation and its management generates a range of positive and negative impacts – for visitors, the natural environment, and local communities.
- The challenge is to consider the various gains and losses and to identify the management action that is “best” given these diverse impacts.
- The simple example of the Sweden case study illustrates how economics can be used to assess one management option – in this case, creation of a new (and separate) trail is worthwhile.